



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,600	07/12/2001	Ryoichi Matsuoka	S004-4331	2218
7590		07/02/2004	EXAMINER	
ADAMS & WILKS		KIBLER, VIRGINIA M		
31st Floor		ART UNIT		
50 Broadway		PAPER NUMBER		
New York, NY 10004		2623		
DATE MAILED: 07/02/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/903,600

Applicant(s)

MATSUOKA, RYOICHI

Examiner

Virginia M Kibler

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 7/14/2000. It is noted, however, that applicant has not filed a certified copy of the 2000-214845 application as required by 35 U.S.C. 119(b).

Claim Objections

2. Claim 4 is objected to because of the following informalities: "based in" should be changed to "based on" in line 9. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Okubo et al. (5,872,862).

Regarding claim 4, Okubo et al. ("Okubo") discloses a pattern observation device body (Figure 12), determination means for analyzing the CAD data and determining a plurality of

control points (Col. 13, lines 49-65; Col. 14, lines 7-52; Figure 14), means for acquiring a set of observational coordinate data based on the plurality of measuring points, or control points, determined by the determination means (Col. 13, lines 61-67, Col. 14, lines 1-15), and a CAD navigation device for sequentially and automatically performing observational positioning for the pattern observation using the pattern observation device body according to the set of observational coordinate data and CAD data (Col. 2, lines 14-28; Col. 13, lines 10-25; Col. 14, lines 7-67).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo et al. (5,872,862) in view of Peng et al (5,561,293).

Regarding claim 1, Okubo et al. ("Okubo") discloses determining a plurality of control points by analyzing the CAD data (Col. 13, lines 49-65; Col. 14, lines 7-52; Figure 14), acquiring a set of observation coordinate data according to the determined plurality of measuring points, or control points (Col. 13, lines 61-67, Col. 14, lines 1-15), referencing the CAD data to carry out positional navigation according to the set of observation coordinate data (Col. 13, lines 6-25; Col. 14, lines 26-67, Col. 15, lines 1-8), and sequentially observing the determined plurality of control points of the pattern (Col. 13, lines 55-65; Col. 14, lines 16-52). Okubo

Art Unit: 2623

discloses a wiring pattern of a semiconductor chip observation method but does not appear to expressly recognize the pattern being a wafer pattern. However, Peng et al. ("Peng") discloses using CAD data of a wafer pattern to provide navigation to a location of interest over a wafer (Abstract). Okubo and Peng are combinable because they are from the same field of endeavor inspection. At the time of the invention, it would have been obvious to one of ordinary skill in the art to have modified the pattern disclosed by Okubo to include a wafer pattern. The motivation for doing so would have been because providing CAD data for a wafer pattern and utilizing the CAD data for positional navigation are well known in the art. Therefore, it would have been obvious to combine Okubo with Peng to obtain the invention as specified in claim 1.

Regarding claim 2, Okubo discloses the plurality of control points are determined by the user (Col. 13, lines 49-65). Peng discloses determining hot spots, or control points, by performing a test to ascertain problematic points (Col. 1, lines 29-44; Col. 3, lines 4-50). While Peng does not appear to expressly state using lithography simulation, device simulation, process simulation, etching simulation, or a CAD pattern density analysis method, at the time of the invention it would have been obvious to a person of ordinary skill in the art. Applicant has not disclosed that lithography simulation, device simulation, process simulation, etching simulation, or a CAD pattern density analysis method provide an advantage, are used for a particular purpose, or solve a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either testing because they perform the same function of determining problematic points. Therefore, it would have been obvious to have modified the determination of the plurality of control points disclosed by Okubo to include

Art Unit: 2623

using problematic points as taught by Peng because it provides a routinely utilized failure analysis of the wafer.

Regarding claim 3, Okubo discloses the positional navigation method as a CAD navigation method that performs observational positioning of the pattern observation device so that the observation centers of the control points are placed in an observational field of view to acquire pattern image data (Col. 8, lines 10-60), thereby to a low magnification factor. Okubo further discloses calculating an offset amount between the observation centers and centers of the observation field of view from the low magnification factor pattern image data and CAD graphics data corresponding to the low magnification factor pattern image data (Col. 8, lines 61-67 through Col. 10, lines 1-10), and performing relative positional control of the stage based on this offset amount so that the centers of observation are aligned with the centers of the observation field of view (Col. 2, lines 14-28; Col. 9, lines 62-67, Col. 10, lines 1-10; Col. 13, lines 10-25).

Other Prior Arts Cited

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 5,604,819 to Barnard for determining offset between images of an IC;

U.S. Pat. No. 6,246,787 to Hennessey et al. for knowledgebase generation and management; and

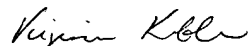
Kwang et al., "CAD Driven High Precision E-Beam Positioning," IEEE 1993, pages 928-935.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia M Kibler whose telephone number is (703) 306-4072. The examiner can normally be reached on Mon-Thurs 8:00 - 5:30 and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Virginia Kibler
06/27/04

MEHRDAD DASTOURI
PRIMARY EXAMINER

